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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/047,024	01/15/2002	Ytsen Wielstra	NL010052	5698

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EXAMINER	
METZMAIER, DANIEL S	

ART UNIT	PAPER NUMBER
1712	8

DATE MAILED: 11/04/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/047,024	WIELSTRA ET AL.	
	Examiner	Art Unit	
	Daniel S. Metzmaier	1712	

-- The MAILING DATE of this communication appears on the cov r sh et with the correspond nce address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 March 2003* .

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☒ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Claims 1-11 are pending. Claims 12-24 have been canceled and claims 1-11 have been amended.

Priority

1. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in EP 01200191.3 on January 18, 2001. It is noted, however, that applicant has not filed a certified copy of the EP 01200191.3 application as required by 35 U.S.C. 119(b). Applicants indicate a copy of said application on April 29, 2002, Paper No. 4, was filed but at the time of examination no copy is present in the application. Applicants have not fulfilled the requirements of 35 U.S.C. 119(b) and therefore are not entitled to the benefit of the foreign priority date.

Claim interpretation

2. The following claim interpretation is set forth for the following rejections. Claims 1-8 are directed to a method of producing a lacquer composition comprising mixing together a first organosilane compound, a metal alkoxide and silica particles under basic conditions to form a reaction mixture. The active step of the method is mixing of a first organosilane compound, a metal alkoxide and silica particles under basic conditions to form a reaction mixture.

The method does not require the addition of silica particles and reads on silica particle *in situ* formation. The claims do not exclude *in situ* silica formation. The claims are open to reacted and unreacted components and by the mixing of the recited components.

Regarding claims 9 and 11, the coated product or the lacquer compositions are examined based on the product made and not how said product is made. Claim 10 is directed to a starting material composition for making a lacquer composition. Said starting composition appears to be transitory in nature since reaction occurs at room temperature upon the combination of ingredients.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hitachi Chemical Co. Ltd, EP 0 768 352 A1 (hereafter Hitachi). Hitachi (examples) discloses compositions, methods and products as coating compositions comprising an organosilane and tetraalkoxysilane with the addition of a further metal alkoxide.

Hitachi (column 4, line 46 et seq) discloses the alkoxysilanes (b) that may be employed and the metal alkoxides (c) that may be employed including zirconium, aluminum and titanium alkoxides having acetylacetonato-derivatives (see instant claims 3 and 11). Hitachi (column 6, line 47) teaches the further incorporation of 3-glycidyloxypropyltrimethoxysilane (e).

Hitachi differs from the claims in the combination of an acid catalyst rather than the claimed basic conditions in claim 1, the explicit characterization of silica particles and the use of an epoxysilane set forth in instant claims 4 and 5 in a single composition.

Hitachi (column 7, line 55, to column 8, line 7) teaches the compositions may be acid or base catalyzed. Hitachi (column 8, line 6) teaches ammonia as a suitable base. Hitachi (column 6, line 47) teaches the further incorporation of 3-glycidyloxypropyltrimethoxysilane (e).

Hitachi discloses the compositions as silica-based film forming compositions. The instant claims do not define the silica particles by size or concentration. Claims are given their broadest reasonable interpretation consistent with the specification during prosecution of patent applications. See MPEP 2111.

The excess tetraalkoxysilane upon hydrolysis and condensation would have been expected to form at least minor amounts of silica particles, which are otherwise undefined in the claims. Furthermore, Hitachi discloses the compositions as forming a silica based coated film composition. Attention is further directed to MPEP 2113. Furthermore, the Hitachi reference (column 2, lines 45-54) further teaches the addition of fine SiO_2 particles to spin on glass films compositions have been studied.

Hitachi (column 13, lines 53 et seq; and examples) further teaches employing about reaction of said reactants forms a high molecular weight condensation products. The examples (example 1) employ 72 mole% of tetramethoxysilane, which equates upon hydrolysis and condensation to a major portion of the mixture as SiO_2.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ basic conditions to catalyst the compositions of Hitachi as taught therein as an obvious catalyst system contemplated in the Hitachi reference. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the Hitachi component (e), 3-glycidyloxypropyltrimethoxysilane, to advantageously modify surface properties and/or improve adhesion. It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ fine particles of silica to advantageously make an ash resistant coating.

6. Claims 1-2 and 4-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nissan Chemical Ind, EP 0 611 812 A2 (hereafter Nissan). Nissan (examples and claims, particularly claim 1) discloses compositions, methods and products as coating compositions comprising an organosilane and tetraalkoxysilane with the addition of a further metal alkoxide. Nissan (page 4, lines 10-14) teaches the formation of silica particles having 10 to 80 nm particle size.

The excess tetraalkoxysilane upon hydrolysis and condensation would have been expected to form at least minor amounts of silica particles, which are otherwise undefined in the claims. Attention is further directed to MPEP 2113.

Nissan differs from the claims in the exemplified combination of the components in a single composition.

Nissan (abstract and claim 1) sets forth coating compositions comprising tetraalkoxysilane, organosilane and titanium alkoxides formed under basic conditions. Nissan (page 4, lines 10-14) teaches the formation of silica particles in the coating compositions having 10 to 80 nm particle size. Nissan (page 3, lines 29) teaches 3-glycidyloxypropyltrimethoxysilane.

It would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ the titanium acetylacetonoate with the organosilanes under basic conditions as claimed in the Nissan reference resulting in the claimed coating compositions as disclosed in the Nissan reference.

Furthermore, it would have been obvious to one of ordinary skilled in the art at the time of applicants' invention to employ 3-glycidyloxypropyltrimethoxysilane as an obvious organosilane contemplated in the Nissan reference.

Response to Arguments

7. Applicant's arguments filed March 24, 2003 have been fully considered but they are not persuasive.

8. Applicants (page 6) assert Hitachi (at paragraph 14[1]) states the acid catalyst more quickly makes a product having higher molecular weight. Said property is the same or substantially the same for a catalyst and would be expected for either the acid or alkaline catalyst.

9. Applicants (page 6) assert the Hitachi reference does not teach the addition of silica particles. This has not been deemed persuasive for the following reasons.

Initially, applicants' claims do not require the addition of silica particles and do not exclude the formation of silica *in situ* as is clear from the Hitachi reference characterization of the products as a silica-based coated film composition.

Secondly, Hitachi (column 8, lines 14-20; and examples) the compositions may be formed by adding the water and catalyst to the alkoxysilane in organic solvent to previously synthesize a partially hydrolyzed product thereof (a silica) and adding the remaining components thereto.

Thirdly, the prior art does not preclude the addition of silica but states that the addition of fine silica has been studied and no positive results have been forthcoming. A *prima facie* case of obviousness exist (claims 1-11) since the claims do not require a separate addition of silica and do not exclude *in situ* formation of silica and (claim 10) since the reference at least suggest the use of silica particles in making ash less coatings.

Applicants assert the examiner has provided no reference that the Hitachi reference produces silica particles *in situ*. This has not been deemed persuasive since a reference is not required. Hitachi (column 8, lines 14-20) teaches the hydrolysis of the alkoxysilane and synthesis of the partially hydrolyzed product. This is clearly known in the art as is shown in the application record. One skilled in the art need look no further

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[1] Applicants reference to paragraph numbers for the reference are confusing since the reference provided to the examiner by applicants and of record does not have paragraph numbers.

than the Nissan reference description of a similar system and the formation of silica particles.

Applicants' claims merely require some presence of silica particles without limitation on concentration, size and/or type. Applicants have provided no reasoning to rebut said *prima facie* case or evidence of unobviousness regarding the use of silica. The use of fine silica is further contemplated in the prior art and at least suggest the use thereof for ash less coated films.

10. Applicants (pages 6 and 7) assert applicants have positively set forth the addition of silica particles. No step of silica particle addition exist in the claims as amended. To the extent it were, the suggestion to add silica has not been adequately rebutted.

11. Applicants (page 7) assert the silica particles are added to provide particular advantages of increased strength and reduced shrinkage and that basic conditions are needed to provide positively charged particles. Applicants' claims are not commensurate with the arguments or the embodiment disclosed in the specification.

12. For the above reasons, the rejection of the claims over Hitachi has been maintained.

13. Applicants (pages 7 and 8) assert the Nissan reference does not teach or suggest the positive step of adding silica particles. Attention is directed to the response to the related arguments for Hitachi addressed above, incorporated herein by reference.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Colloid Chemistry of Silica further details the common

knowledge of sol-gel formation of silica particles from tetraalkoxysilanes under basic conditions. Attention is further directed to Patel, US 5,433,941, as an example of the sol-gel formation of coatings employing an alkaline catalyst, optionally with glycidyloxypropyltrimethoxysilane and/or a filler (columns 1 and 2).

15. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel S. Metzmaier whose telephone number is (703) 308-0451. The examiner can normally be reached on 9:00 AM to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on (703) 308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Daniel S. Metzmaier
Primary Examiner
Art Unit 1712

DSM
May 28, 2003